

[illegible]

Sub EY ~~first end.~~

**A cable tie, comprising:**

5 a strap including a first end forming a neck section, a free end opposite the first end, and an intermediate section between the first end and the free end, the intermediate section having a predetermined width  $B_1$  and thickness  $T_1$  defining a predetermined cross-sectional area;

10 a cable tie head secured to the neck area of the strap at the first end of the strap, the cable tie head having a width E that is wider than strap width B and including a strap accepting channel containing a locking device, the strap accepting channel being sized to receive the free end of the strap,

wherein the neck section has a width that transitions from a width of  $B_1$  to a width  $E'$  that is substantially the same as width  $E$  and a thickness  $T_2$  that is thinner than  $T_1$ , the neck section having a cross-sectional area that is at least substantially equal to the cross-sectional area of the intermediate section of the strap so as to have a tensile strength at least equal to a tensile strength of the intermediate section of the strap.

2. The cable tie of claim 1, wherein the neck section includes an angular bend of approximately 90°.

3. The cable tie of claim 1, wherein the strap accepting channel of the cable tie head is oriented along an axis substantially perpendicular to the intermediate section of the strap.

4. The cable tie of claim 1, wherein the cross-section of the neck section includes at least one reduced thickness channel of thickness  $T_2$  and thickened side portions of a thickness  $T_3$  that is greater than  $T_2$ .

25 5. The cable tie of claim 4, wherein the at least one reduced thickness channel is provided on a lower side of the neck section.

6. The cable tie of claim 4, wherein the at least one reduced thickness channel is provided on an upper side of the neck section.

7. The cable tie of claim 4, wherein the at least one reduced thickness channel includes a first channel formed on a lower side of the neck section and a second channel formed on an upper side of the neck section.

8. The cable tie of claim 4, wherein the at least one reduced thickness channel increases in width from the intermediate section of the strap to the cable tie head.

9. The cable tie of claim 8, wherein the increase in width of the at least one reduced thickness channel is proportional to the increased width of the neck section.

10. A method of forming a cable tie having a cable tie head of width E with a strap accepting channel oriented along an axis, an integral neck section, and a strap having a width B less than E, comprising the steps of:

providing a two-piece mold having a stepped part line (P/L) that extends parallel to a midline of a cable tie strap and neck section formed by the mold and then at a transition interface between the neck section and a cable tie head extends across the cable tie head, the mold forming the cable tie head with a width E, forms the strap with a width B and a thickness T, and forms the neck section with at least one thickness reducing channel having a thickness  $T_2$  that is less than thickness T of the strap and a total neck section width that increases from a width B near the strap to a width E' adjacent the cable tie head that is substantially equal to width E of the cable tie head, the neck section further including thickened side portions having a thickness  $T_3$  that is greater than  $T_2$ , the thickened side portions providing a fluid flow path between the cable tie head and the strap; and

injecting a material into the mold to form the cable tie, the material flowing between the cable tie head and the strap through at least the thickened side portions.

11. The method of claim 10, wherein the cable tie is a bent neck type cable tie and the mold forms the neck section with an angle of about  $90^\circ$ .

12. The method of claim 11, wherein the strap is molded to be oriented substantially perpendicular to the axis of the strap accepting channel of the cable tie head.

13. The method of claim 10, wherein the mold forms the strap with a predetermined cross-sectional area.

14. The method of claim 13, wherein the mold forms the neck section with a predetermined cross-sectional area that has a lower moment of inertia than a moment of inertia of the strap.

15. The method of claim 14, wherein the mold forms the predetermined cross-sectional area of the neck section to be substantially equal to the cross-sectional area of the strap.

17. The method of claim 10, wherein the mold forms a reduced thickness channel on an upper side of the neck section.

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